

ABSTRACT OF THE DISCLOSURE

A passive Traffic Alert and Collision Avoidance System (TCAS) and method is based on receiving and processing Mode-S transponder messages without the TCAS computer having to interrogate the transponders of the respective aircraft flying in formation (i.e., a passive TCAS). A TCAS computer and Mode-S transponder are used to provide distributed intra-formation control among multiple cells of aircraft flying in formation or close-in. The Mode-S transponder provides ADS-B Global Positioning System (GPS) squitter data to the TCAS computer; the TCAS computer receives and processes the data without having to interrogate the transponders of the multiple cells of aircraft. The method and system allow a safe separation between 2 to 250 aircraft flying in formation at selectable ranges.